of years of service, say not less than ten, to be released from the professorial duties for a period of about a year, and, at any rate, not less than six months on full salary, a substitute being paid out of the income of the fund; the purpose of this release from college duties being to enable the professor to refresh his mind by travel or research or visits to other universities, and so gain fresh stimulus and equipment for his work."

THE University of Pittsburgh will celebrate its one hundred and twenty-fifth anniversary on February 27, 28 and 29, 1912. The first charter was granted to the Pittsburgh Academy on February 27, 1787. In 1819 it became the Western University of Pennsylvania, the name being again changed in 1908 to the University of Pittsburgh. Educational conferences will be held on Tuesday, February 27. On Wednesday, February 28, an historical address on "The Progress of Higher Education since 1787" will be given by Chancellor Kirkland, of Vanderbilt University. This address will be followed by the conferring of honorary degrees. In the afternoon an historical address on the University of Pittsburgh will be given by former Chancellor Holland, followed by addresses by representatives of educational institutions. On Thursday, February 29, there will be conferences of the college presidents of Pennsylvania and secondary schools of western Pennsylvania. The visiting guests will be entertained at luncheon on each day of the anniversary celebration and at the alumni anniversary banquet on Wednesday evening.

BY vote of the faculty of Oberlin College, the budget for the current year contains a special appropriation to be used in defraying the expenses of administrative officers, professors and associate professors who wish to attend meetings of scientific societies and other gatherings of a professional nature. The faculty is divided into ten groups, and each has a proportionate share in the general fund.

THE inauguration of President Hibben of Princeton University will take place on the morning of Saturday, May 11.

FATHER ALEXANDER J. BURROWES, S.J., a native St. Louisian and now the head of Loyola University, has been elected president of St. Louis University, succeeding Father G. P. Frieden, S.J., who died suddenly two months ago.

DISCUSSION AND CORRESPONDENCE

PROFESSOR JENNINGS AS A BIOLOGICAL PHILOSOPHER

NOT for many a day, according to my notion, has anything more significant taken place in the biological realm than Professor Jennings's presidential address on "Heredity and Personality" before the American Society of Naturalists at its recent meeting (SCIENCE, December 29, 1911).

How splendid an era of biological achievement will have been ushered in when men of Jennings's rank shall come forth from their laboratories upon occasion and discuss, without feeling the need of apology for doing so, the infinitely large as well as the infinitely small problems of our science! This address augurs for Jennings as commanding a place in the larger biology as he now holds in the smaller.

Concerning the particular road, namely, that of genetics, by which Professor Jennings has come so near the edge of the woods of biological minutism I shall say little at this time. Rather it is about his rôle as philosopher, or better as metaphysician, that I wish to speak. In the first place I want to express my gratification at the clear evidence furnished by this address particularly, that he possesses both the aptitude and the courage to be the successor of Brooks, not merely as a professor of zoology but as an upholder of the rights and dignity of the philosophical side of biology. In the second place I am going to claim the privilege usually accorded to seniority of years and counsel Jennings against the supposed necessity of apologizing for the violation of good biological manners when he yields to his inclination to talk to fellow biologists on large subjects.

Now as to the problems raised. I do not, as already said, propose to go far into the sub-

ject matter of these at present. My chief wish is to point out what, as I see them, they are historically; and to state in language not primarily biological, but rather psychological and logical, what I conceive to be the central one among them.

When the man who is a biologist comes, as he sooner or later must come, upon the problems of the "*I*," the "*not-I*," the "*self*," "*personality*," "*potentiality*," and the rest, he is doomed to almost complete failure in his attempt to deal with them unless he supplements, whole-heartedly and with much pains, the methods to which he is accustomed in his usual field and laboratory researches by at least some of the methods of the introspective psychologist, the logician and the metaphysician. The main reason why this is so is that our senses and our minds are just as truly instruments of research—parts of our laboratory equipment—as are our microscopes, our mother tongue, and our mathematical formulæ. Consequently to neglect to inform ourselves somewhat as to the principles of construction and mode of working of these personal instruments is to be mere rule-of-thumb workmen, just as similar neglect of the principles underlying our microscopes and language and mathematical formulæ would make us rule-of-thumb users of these means of research. The biologist who has given no attention to the way sense perception, and imagination, and rational process enter into a laboratory investigation has no more claim to be considered a genuinely scientific biologist than has a druggist's clerk to be considered a genuinely scientific chemist.

When one passes beyond the state of the raw empiricist in the use of his personal tools of research he soon comes upon the retinue of questions raised by Professor Jennings, and finds himself face to face with such live historical questions as that of the meaning of *radical empiricism;* as that of what the real kernel of *psycho-physics* is; as that of what is actually at the bottom of the conception of "*things-in-themselves*," of Berkeley's *esse est percipi,* of Descartes's famous *cogito* dictum, of the Schoolmen's endless troubles about *matter* and *form, substance* and *accident,* of the early Church Fathers' warrings over the *Logos* and the *Trinity,* of Plato's *Ideas,* of the Chinese Buddhist's *Bodhisattva,* of the Vedic poet's *deva* and *vasu,* of the Melanesian's *Mana* and of innumerable other words and phrases found wherever the deeper instincts and desires and strivings of human beings have found expression in terms that mean any thing at all to other human beings. Vital knowledge of these matters does not imply vast learning. In these days when books on all subjects under heaven are almost as abundant and accessible as the leaves on the trees nothing is requisite to make every educated person informed in these regions beyond the recognition of how vital such knowledge is, and industry, economy and discrimination in the use of his time.

So much for the historical setting of the problems. Now a little as to what, substantively, the central one among them is. It is the two-fold problem as to just how all knowledge of nature, be it ordinary or scientific, is built up, and whether there is any knowledge whatever that does not contain, on the one hand, essential elements of sense perception, and, on the other hand, essential elements that can not be derived from sense perception, but have their seat at deeper depths than sense.

All I am going to say toward an answer to this question is this: If Professor Jennings will tackle again his exceedingly interesting questions of how long a "pure line" may be, and how many knots there are in the web of organic existence, starting this time from the standpoint of the "standardized reality" suggested by me a few years ago,[1] and will work at it as devotedly as he does at problems of animal behavior and genetics, he will find no more possibility of getting into the limbo he seems to be in over reincarnation than of getting ensnarled in the problem of whether there is anywhere in the universe a place in which *cubes are spherical in shape.* To be

[1] "Life from a Biologist's Standpoint," *Popular Science Monthly,* August, 1909, p. 180.

more specific, he will find that in his phrase "If . . . I am a redevelopment of the characteristics of some former individual from a piece of his body," the words "I" and the group of words "characteristic of some former individual" exactly cancel each other and leave an intellectual blank, just as do the words "cubical" and "spherical" when the attempt is made to apply them to one and the same body. That is to say, despite the splendid combination of breadth of outlook and ability as a laboratory methodologist and technicist which distinguishes Jennings as a biologist, his address at this point is subject to the same miscarriage of reason that has characterized nearly all modern speculative thinking on the Mendelian type of inheritance. The miscarriage to which I refer arises from neglecting the technical detail of noticing that since there always is a strictly psychological or subjective element in the idea expressed by the term "characteristic," it comes about that the very construction of the sense-perceptional aspect of our knowledge is such as to make it utterly impossible for the truly *same* characteristic to belong to more than one body. This fundamental truth has been overlooked in speculative biology largely, I suspect, from failure to note that so far as the subjective side of perception is concerned, "characteristic" is exactly synonymous with "quality" and "property." Bearing this fact in mind, the situation clears up readily when we turn to the familiar practical (not, generally, the theoretical) language of chemistry. The working chemist never for an instant thinks of trying to express or "explain" the characteristics, or properties of hydrogen in "terms of" the characteristics of oxygen, for he knows perfectly well that were he able to do such a thing there would be no such gas as hydrogen, for all hydrogen would be oxygen. There is no doubt in the world, as one sees if he looks at the case closely, that most of the recent effort to "explain" the adult organism in terms of the germ cells has involved just the self-destructive fallacy that the chemist would be a victim of were he to try to explain hydrogen in terms of oxygen. The fact that the adult organism develops from the germ cells while oxygen does not, so far as we know, develop from hydrogen, does not in the least affect the psychological fact that the adult is known by its own characteristics and in no other way, exactly as the germ cell is known by its characteristics and in no other way.

Once one sees clearly that this aspect of the problem of genetics differs *toto celo* from the problem of developmental potentiality, that is, the problem of how the germ cell is able to develop into the adult, he has gone a very long way toward a consistent, workable philosophy of biology.

In Jennings's sentence "if the phrase 'potential immortality' means anything for the infusorian, it means exactly the same for me, so far as we can judge from past history," I find encouragement for the hope that he will be willing to give my principle of standardization a good testing.

WM. E. RITTER
MARINE BIOLOGICAL STATION OF SAN DIEGO,
LA JOLLA, CALIFORNIA,
January 4, 1912

THE CHESTNUT TREE DISEASE

TO THE EDITOR OF SCIENCE: In connection with the chestnut tree disease mentioned in SCIENCE of December 29, 1911, and in preceding numbers, the writer calls attention to the hardy giant chinquapin (*Castanopsis Chrysophilla*) of the Pacific states. This may be a resistant species adaptable to the southern states. It occurs in two varieties, the one just mentioned and a dwarfed variety. The former reaches a height of 120 feet and has a diameter of from 8 to 10 feet; ordinarily from 40 to 55 feet in height and from 1 to 2 feet in diameter. Locality, near Willets in Mendocino County, Cal. The dwarfed form is abundant in the Cascade and Sierra Nevada and San Jacinto mountains from 2,000 to 9,000 feet. It is mostly of shrubby habit, but to all appearances identical with the giant chinquapin. This latter is a hardy and long-lived evergreen of stately and handsome